

**A Second Collection of Mallophaga from Birds of the
Galapagos and Revillagigedo Islands
and Neighboring Waters.**

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In 1902 Mr. Kuwana and I published (Proc. Wash. Acad. Sci., vol. iv, pp. 457-499, plates XXVIII-XXXI, September, 1902) an account of a collection of Mallophaga biting (bird-lice) made by Mr. R. E. Snodgrass of the Hopkins-Stanford Galapagos Expedition of 1898-99. This was the first collection of Mallophaga ever made from these islands, and included specimens from 183 birds representing 34 out of the 79 bird species known on the islands. Of the 5 bird genera and 48 species peculiar to the islands, Mallophaga were taken by Mr. Snodgrass from all the genera and from 26 of the species. The whole number of species of Mallophaga in the collection is 43, of which 25 were new to science and were described in the paper referred to.

The present collection is one made by Mr. Rollo Beck in the summer of 1901, and the third determinations are those of the collector. While the collection contains but three new species, including one new genus (a fact saying much for the thoroughness of Mr. Snodgrass's collecting in 1898-99), it nevertheless extends the host record for several previously known species, and for that reason alone the list should be put on record. As I am at present engaged in preparing the account of the Mallophaga for Wytzman's *Genera Insectorum*, I wish to include Mr. Beck's records in this account, and hence, with the assistance of two students, A. W. Wellmann and A. M. Brown, familiar with the Mallophaga, I have rather hurriedly, but I think safely, determined and listed the species included in Mr. Beck's collection.

The original descriptions and host records for all species hitherto accredited to the Galapagos Islands are to be found in the paper in the Proceedings of the Washington Academy of Sciences already referred to. All of Mr. Beck's host records are given in the present list, and wherever the host record is new the fact is mentioned. Exactly the same remarkable phenomena of host distribution are to be noted in the records of Mr. Beck's collection as were apparent in Mr. Snodgrass's records. And this indicates—what, indeed, was

almost certain by reason of Mr. Snodgrass's care—that these phenomena represent truly the normal conditions of distribution. The explanation suggested by me on pp. 458 and 459, Proc. Wash. Acad. Sci., vol. iv, in a discussion of this startling distribution (the occurrence of a parasite species on two hosts so widely systematically separated and with such different habits as a tern and a sparrow) is probably the true one. We have to do, that is with an abnormal phase of normal straggling! On the rocks of the islands maritime and land birds often sit closely huddled (as Snodgrass observed and reported) actual contact of the bodies of the different birds often occurring. Migration of the parasites is thus easily effected, and individuals of a parasitic species nominally peculiar to maritime birds find their way to a sparrow or honey creeper.

Genus **DOCOPHORUS**.

D. validus minor Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 460, 1902.

From *Puffinus subularis* (Culpepper, Albemarle Ids.).

D. peristictus Kell. and Kuw., Proc. Wash. Acad. Sci., v. iv, p. 462, pl. 28, fig. 2, 1902.

From *Puffinus subularis* (Culpepper Id.). New record,

D. taurocephalus Kell., New Mall. II, p. 471, pl. 45, fig. 1, 1896.

From *Puffinus subularis* (Seymour Id.), new record.

D. platycephalus Kell. and Kuw., Proc. Wash. Acad. Sci., vol. 4, p. 461, pl. 28, fig. 1, 1902.

From *Oceanites graeilis* (Wenman Id.).

D. phatounus Osborn, Proc. U. S. Nat. Mus., vol. xii, p. 189, 1899.

From *Phaethon aetherus*, new record (Daphne, Indefatigable Ids.), *P. flavirostris*, new record (Wenman Id.).

D. albemarlensis Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 465, pl. 28, fig. 5, 1902.

From *Phaethon aetherus*, new record (Seymour Id.), *Sterna fuliginosus* (Culpepper Id.).

D. melanocephalus Burm., Handb. d. Ent., vol. ii, p. 426, 1839.

From *Sterna fuliginosus* (1° N. 93° W.), *Anous stolidus galapagensis*, new record (Wenman, Culpepper Ids.), *Creagrus furcatus* (1° N. 93° W.), new record.

D. cursor Nitzsch, Giebel's Ins. Epiz., p. 75, pl. 10, figs. 5 and 6, 1874.

From *Asio galapagensis*, new record (Clarion Id.).

D. corvi Osborn, Bulletin 5, N. S. Div. of Ent., U. S. Dept. of Agric., p. 220, fig. 142, 1896.

From *Corvus* sp., new record (Clarion Id.).

D. icterodes Nitzsch, Giebel's Ins. Epiz., p. 115, pl. 10, fig. 8, 1874.

From *Anas versicolor*, new record (Indefatigable Id.).

D. breviformis Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 463, pl. 28, fig. 3, 1902.

From *Progne modesta* (Indefatigable Id.).

D. domesticus Kell., New Mall., II, p. 475, pl. 45, fig. 4, 1896.

From *Progne modesta*, new record (Indefatigable Id.).

D. lari Denny, Anoplur. Brit., p. 89, pl. 5, fig. 9, 1842.

From *Creagrus furcatus* (1° N. 93° W.).

D. galapagensis Kell. and Kuw.

From *Nesomimus parvulus* (Indefatigable Id.).

D. speotyti Osborn, Bulletin 5, N. S. Div. of Ent., U. S. Dept. of Agric., p. 222, fig. 144, 1896.

From *Speotyto* sp.

Genus **NIRMUS**.

N. gloriosus Kell. and Kuw., Proc. Wash. Acad. Sci., vol. 4, p. 467, pl. 29, fig. 1, 1902.

From *Anous stolidus galapagensis* (6° N. 115° W.).

N. galapagensis Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 471, pl. 29, fig. 5, 1902.

From *Anous stolidus galapagensis* (6° N. 115° W.), *Nesomimus melanotes*, new record (James Id.), *Geospiza fortis* (Indefatigable Id.).

N. separatus Kell. and Kuw., Proc. Wash. Acad. Sci., vol. 4, p. 472, pl. 29, fig. 6, 1902.

From *Anous stolidus galapagensis* (Wenman Id.), *Oceanodroma cryptoleuca*, new record (Bindloe Id.), *Sterna fuliginosa*, new record (Bindloe Id.), *Nesopelia galapagensis*, new record (Bindloe Id.).

Nirmus ridgwayi n. sp.

Males and females from *Hamatopus galapagensis* (Indefatigable Id.). A member of Piaget's group *bicuspidati*.

Female.—Body, length 2.34 mm.; width .56 mm.; pale, with strong lateral bands and light brown narrow segmental transverse blotches; differing from *signatus* and *bicuspis* by not having the dorsum mostly brown. Head, length .6 mm.; width .45 mm.; elongate, clypeus expanded anteriorly in a thin transparent portion with flatly rounded margin, clypeal signature weak, clypeal sutures distinct, two hairs at suture, one in front of suture and one behind; trabeculæ distinct, although small; temporal margins flatly convex with two longish hairs; lateral margins of head sharply narrowly blackish brown; no occipital signature; antennæ with segment 2 longest segment 3 nearly as long, and 5 a little longer than 4, uncolored. Prothorax nearly square, lateral margins weakly concave in median part, one small hair in each posterior angle; metathorax pentangular with lateral margins slightly concave in middle, the two posterior sides meeting by a flatly rounded obtuse angle, six pustulated hairs in each postero-lateral angle, two of these hairs longest and set in a common pustule, lateral margins narrowly but strongly blackish brown. Legs almost uncolored, except for pale smoky brown tinge on tibiæ and tarsi. Abdomen fairly slender, with flatly convex sides, with two to three longish weak hairs in the postero-lateral segmental angles, and the margins narrowly but strongly blackish brown, and rather incomplete narrow pale brown transverse blotches across the posterior margin of each segment; these transversal linear blotches have each a small triangular expansion in the middle; last abdominal segment markedly two-pointed although these points are not long.

Male.—Body, length 1.84 mm.; width .5 mm.; head, length .56 mm.; width .41 mm.; on abdomen a brown suffusion over most of segments 3-6; on segment 8 this brown is in the form of two distinct lateral blotches tapering toward the median line of the body and not quite meeting, on segment 9 the brown extends clear across as a strong transverse blotch; posterior margin of last segment rounded, brown, and bearing several longish weak hairs.

N. fuscus Nitzsch, Giebel, Zeitsch. f. ges. Naturw., vol. xvii, p. 523, 1861.

From *Buteo galapagensis*, new host record (Bindloe Id.).

N. fuscomarginatus Denny, Anoplur. Brit., p. 136, pl. 10, fig. 1, 1842.

From *Nesomimus parvulus*, new host-record (Indefatigable Id.).

Genus **LIPEURUS**.

Lipeurus ferox Giebel, Zeitsch. f. ges. Naturw., vol. xxix, p. 195, 1867.

From *Diomedea nigripes* (16° N. 114° W., Clarion Id.).

L. confidens Kell., New Mall., III, p. 26, pl. 3, fig. 1, 1899.

From *Diomedea nigripes* (Clarion Id.).

L. diversus Kell., New Mall., i, p. 123, pl. 8, figs. 3 and 4, 1896.

From *Puffinus obscurus subalaris* (Culpepper Id.), *Anous stolidus galapagensis* (Culpepper Id.), *Fulmarus* sp. (13° N. 103° ? W.), *Æstrelata phaeopygia*, new record (13° N. 103° ? W.).

L. languidus Kell. and Kuw., Proc. Wash. Acad. Sci., vol. 4, p. 475, pl. 29, fig. 8, 1902.

From *Oceanites gracilis* (1° N. 93° W., 13° N. 103° W., Wenman Id.), *Puffinus obscurus subalaris*, new record (Culpepper Id.), Albe-marle Id., Clarion Id.), *Fulmarus* sp., new record (Wenman Id.), *Sula fuliginosa*, new record (1° N. 93° W.), *Estrelata phaeopygia*, new record (12° 50' N. 107° W.), *Phocellaria tethys* (Wenman Id.).

L. potens Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 477, pl. 30, fig. 1, 1902.

From *Puffinus subalaris*, new record (Seymour and Wenman Ids.), *Phaethon athereus*, new record (Daphne Id.; 16° N., 114° W.; Seymour Id.), *Fregata aquila*, new record (Wenman Id.), *Sula websteri* (Culpepper Id.; 4° N. 96° W.; 12° N. 107° W.; Tower Id., Clarion Id., Wenman Id.), *Sula variegata*, new record (6° N., 115° W., Clarion Id., 15° N., 113° W., Culpepper Id., Wenman Id., 13° N., 103° W., Seymour Id.), *Sula nebowi*, new record (Seymour Id.), *Sula brewsteri*, new record (12° N. 107° W.).

L. helleri Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 479, pl. 30, fig. 3, 1902.

From *Puffinus subalaris*, new record (Clarion Id.), *Anous stolidus galapagensis*, new record (Bindloe Id.; 1° N. 93° W.), *Sula variegata*, new record (Culpepper Id., Clarion Id.), *Sula websteri* 1° N. 93° W.; Bindloe Id., Tower Id., Wenman Id., Seymour Id., Culpepper Id., 16° N. 114° W.; Clarion Id.), *Sterna fuliginosa*, new record 1° N. 93° W.).

L. exiguus Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 479, pl. 30, fig. 2, 1902.

From *Oceanites gracilis* (13° N. 110° W.), *Puffinus subalaris*, new record (Clarion Id.), *Fregata aquila*, new record (Clarion Id.).

L. limitatus Kell., New Mall., i, p. 124, pl. 8, figs. 5 and 6, 1896.

From *Puffinus subalaris* (Wenman and Clarion Ids.), *Estrelata phaeopygia*, new record (13° N. 103° W.).

L. fuliginosus Tasch., Die Mall., p. 156, pl. 8, figs. 5 and 6, 1896.

From *Sula websteri*, new record (Clarion Id.).

L. gracilicornis major Kell., New Mall., iii, p. 30, pl. 3, fig. 3, 1899.

From *Fregata aquila* (16° N. 114° W., Wenman Id., Clarion Id.), *Sula variegata*, new record (Clarion Id.).

L. baculus Nitzsch, Zeitsch. f. ges. Naturw., vol. 18, p. 305, 1861.

From *Nesopelia galapagensis*, new record (Bindloe Id.).

Genus **GIEBELIA**.

Giebelia mirabilis Kell., New Mall., i, p. 138, pl. 11, figs. 7 and 8, 1896.

From *Puffinus subularis* (Wenman and Clarion Ids.), *Fulmarus* sp., new record (13° N. 103° W., Wenman Id.), *Oceanites gracilis*, new record (13° N. 103° W.), *Sula websteri*, new record (Clarion Id.), *Estrelata phaeopygia*, new record (13° N. 103° W.).

Genus **PHILOCEANUS**.

Philoceanus (n. gen.) **becki** (n. sp.) Kell. Biol. Bull. vol. v, p. 87, figs. 1, 2, 1903.

From *Procellaria tethys* (Wenman Id.).

Genus **EURYMETOPUS**.

E. brevis Dufour, Ann. Ent. Soc. France, vol. iv, p. 674, pl. 31, fig. 3, 1831.

From *Diomedea nigripes* (16° N. 114° W., Clarion Id.).

Genus **GONIOCOTES**.

G. galapagensis Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 481, pl. 30, fig. 5, 1902.

From *Fregata aquila*, new record (Wenman Id.), *Sula websteri*, new record (Wenman Id.), *Anous stolidus galapagensis* (Bindloe Id.), *Nesopelia galapagensis*, new record (Bindloe Id.).

Genus **TRINOTON**.

T. lituratum Nitzsch, Giebel's Ins., Epiz., p. 260, pl. 18, fig. 10, 1874.

From *Anas versicolor*, new record (Indefatigable Id.).

T. luridum Nitzsch, Giebel's Ins., Epiz., p. 258, pl. 18, fig. 7, 1874.

From *Anas versicolor*, new record (Indefatigable Id.), *Harmatopus galapagensis* new record (Indefatigable Id.).

Genus **COLPOCEPHALUM**.

C. spineum Kell., New Mall., iii, p. 38, pl. 4, fig. 1, 1899.

From *Anous stolidus galapagensis* (Wenman Id.), *Puffinus subularis*, new record (Wenman Id.), *Sula websteri*, new record (Wenman Id.), *Fregata aquila* (16° N. 114° W., Clarion Id., Wenman Id.).

C. funebre Kell. New Mall., i, p. 147, pl. 12, fig. 7, 1896.

From *Phaethon athereus*, new record (Daphne Id.).

C. milleri Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 483, pl. 30, fig. 6, 1902.

From *Anous stolidus galapagensis* (Bindloe and Wenman Ids.), 1° N., 93° W.), *Phaethon athereus*, new record (13° N. 103° W., Wenman Id.), *Sula variegata*, new record (Culpepper and Seymour Ids., 6° N. 115° W.), *Sula nebouxi*, new record (Seymour Id.), *Nesopelia galapagensis*, new record (Bindloe Id.).

C. subaequale Nitzsch, Giebel Ins. Epiz., p. 265, pl. 13, figs. 13 and 14, 1874.

From *Sula websteri*, new record (Clarion Id.), *Fregata aquila*, new record (Clarion Id.), *Corvus* sp., new record (Clarion Id.).

C. unciferum Kell., New Mall., i, p. 140, pl. 12, figs. 1-3, 1896.

From *Sula variegata*, new record (6° N., 115° W.), *Fregata aquila*, new record (Wenman Id.), *Anous stolidus galapagensis*, new record (Wenman Id.), *Anas versicolor*, new record (Indefatigable Id.).

C. flavescens Nitzsch, Zeitsch. f. ges. Naturwiss., vol. 17, p. 522, 1861.

From *Buteo galapagensis*, new record (Indefatigable Id.), *Fregata aquila*, new record (Wenman Id.).

C. grandiceps Piaget, Les Pedic., p. 558, pl. 46, fig. 7, 1880.

From *Hamatopus galapagensis*, new record (Indefatigable Id.).

C. heterosoma Piaget, Les Pedic., p. 572, pl. 48, figs. 3 and 4.

From *Progne modesta*, new record (Indefatigable Id.).

Genus **MENOPON.**

M. fuscofasciatum Piaget, Les Pedic., p. 492, pl. 40, fig. 9, 1880.

From *Phaethon athereus*, new record (Daphne Id., Indefatigable Id., Seymour Id.), *Sula variegata*, new record (6° N. 115° W.), *Fregata aquila*, new record (Wenman Id.), *Anous stolidus galapagensis*, new record (7°30' N. 115° W.).

M. numerosum Kell., New Mall., i, p. 159, pl. 15, fig. 1, 1896.

From *Puffinus subalaris*, new record (Seymour Id.).

M. singularis Kell. and Kuw., Proc. Wash. Acad. Sci., vol. v, p. 485, pl. 31, fig. 1, 1902.

From *Phaethon athereus*, new record (13° N. 103° W.), *Sula variegata*, new record (15° N., 113° W., Culpepper Id., Wenman Id.), *Sula nebouxi*, new record (Seymour Id.), *Sterna fuliginosa*, new record (Bindloe Id.).

M. narboroughi Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 485, pl. 31, fig. 2, 1902.

From *Sula variegata*, new record (Culpepper Id.), *Anous stolidus galapagensis*, new record (Bindloe Id.).

M. navigans Kell., New Mall., i, p. 156, pl. 14, figs. 4 and 5, 1896.

From *Sula variegata*, new record (13° N., 103° W.).

Menopon beckii n. sp.

One female from *Phaethon æthereus*, Daphne Id. A broad dark form of some similarity to *singularis* K. and *narboroughi* K., described from Galapagos birds, but differs in various noticeable details.

Female.—Body length, 2.4 mm.; width, 1.12 mm.; robust bodied, almost wholly brown.

Head.—Length .44 mm.; width .85 mm.; the outline of the head is roughly pentangular, the front being roundly obtusely angled in the middle and at the antero-lateral regions; numerous small and some longish hairs scattered along the margin and five long hairs in each temporal angle; color all brown with darker bands and borders. Prothorax with prominent lateral angles and longish hairs all along lateral and posterior margins, color same as head with darker chitinized bands. Meso- and metathoracic segment with lateral margins slightly concave or emarginate at middle indicating line of fusion between the two segments, fourteen short stiff hairs along posterior margin, latero-posterior angles with two longish hairs; color of whole thorax same as head, with a narrow transversal uncolored band along line of fusion of meso- and metasegments, and another along posterior margin of metathorax; also a thin incomplete median longitudinal uncolored line. Abdomen broadly ovate, completely covered by strong brown transverse blotches, except for the distinct narrow uncolored sutural spaces, these more marked on posterior half of abdomen than on anterior half; no 'coma'-shaped darker markings (chitinized bands) as in *M. singularis* K. and *M. narboroughi* K. (the rather similar *Menopon* species already described from Galapagos birds); a single transverse submarginal row of slightly pustulated hairs across posterior part of each segment, and two to three long weak hairs in each latero-posterior angle; hindmost segment all brown, with even flatly rounded posterior margin.

M. incertum Kell., New Mall., ii, p. 533, pl. 73, fig. 2, 1896.

From *Nesomimus parvalus* (Indefatigable Id.), *N. melanotis*, new record (James Id.), *Progne modesta*, new record (Indefatigable Id.), *Sterna fuliginosa*, new record (Bindloe Id.).

M. rusticum Giebel, Ins. Epiz., p. 288, 1874.

From *Progne modesta*, new record (Indefatigable Id.).

LIST OF HOSTS WITH PARASITES.

Diomedea nigripes.	Sula variegata.
<i>Lipeurus ferox.</i>	<i>Lipeurus potens.</i>
" <i>confidens.</i>	" <i>helleri.</i>
<i>Eurymetopus brevis.</i>	" <i>gracilicornis major.</i>
Fulmarus sp.	<i>Colpocephalum milleri.</i>
<i>Lipeurus diversus.</i>	" <i>unciferum.</i>
" <i>languidus.</i>	<i>Menopon navigans.</i>
<i>Giebelia mirabilis.</i>	" <i>singularis.</i>
Puffinus subularis.	" <i>narboroughi.</i>
<i>Docophorus validus minor.</i>	" <i>fuscofasciatum.</i>
" <i>peristictus.</i>	Sula nebouxi.
" <i>taurocephalus.</i>	<i>Lipeurus potens.</i>
<i>Lipeurus languidus.</i>	<i>Colpocephalum milleri.</i>
" <i>diversus.</i>	<i>Menopon singularis.</i>
" <i>potens.</i>	Sula brewsteri.
" <i>helleri.</i>	<i>Fregata aquila.</i>
" <i>exiguus.</i>	<i>Lipeurus potens.</i>
" <i>limitatus.</i>	" <i>gracilicornis major.</i>
<i>Giebelia mirabilis.</i>	" <i>exiguus.</i>
<i>Colpocephalum spineum.</i>	<i>Colpocephalum spineum.</i>
<i>Menopon numerosum.</i>	" <i>subæquale.</i>
Oceanites gracilis.	" <i>unciferum.</i>
<i>Docophorus platycephalus.</i>	" <i>flavescens.</i>
<i>Lipenrus languidus.</i>	<i>Gonicotes galapagænsis.</i>
" <i>exiguus.</i>	<i>Menopon fuscofasciatum.</i>
<i>Giebelia mirabilis.</i>	Anous stolidus galapagænsis.
Phæton ætherus.	<i>Docophorus melanocephalus.</i>
<i>Docophorus phætonus.</i>	<i>Nirmus gloriosus.</i>
" <i>albemarlensis.</i>	" <i>galapagænsis.</i>
<i>Lipeurus potens.</i>	" <i>separatus.</i>
<i>Colpocephalum funebre.</i>	<i>Lipeurus helleri.</i>
" <i>milleri.</i>	" <i>diversus.</i>
<i>Menopon fuscofasciatum.</i>	<i>Gonicotes galapagænsis.</i>
" <i>singularis.</i>	<i>Colpocephalum milleri.</i>
" <i>becki.</i>	" <i>unciferum.</i>
Phæton flavirostris.	" <i>spinerum.</i>
<i>Docophorus phætonus.</i>	<i>Menopon fuscofasciatum.</i>
Sula websteri.	" <i>narboroughi.</i>
<i>Lipeurus helleri.</i>	Stera fuliginosa.
" <i>potens.</i>	<i>Docophorus albemarlensis.</i>
" <i>fuliginosus.</i>	" <i>melanocephalus.</i>
<i>Giebelia mirabilis.</i>	<i>Nirmus separatus.</i>
<i>Gonicotes galapagænsis.</i>	<i>Lipeurus languidus.</i>
<i>Colpocephalum subæquale.</i>	" <i>helleri.</i>
" <i>spineum.</i>	<i>Menopon incertum.</i>
	" <i>singularis.</i>

Creagrus furcatus.

Docophorus lari.

" melanocephalus.

Oceandroma cryptoleucura.

Nirmus separatus.

Procellaria tethys.

Lipeurus languidus.

Philoceanus becki.

Æstrelata phaopygia.

Lipeurus limitatus.

" languidus.

" diversus.

Giebelia mirabilis.

Anas versicolor.

Docophorus icterodes.

Trinoton lituratum.

" " luridum.

Colpocephalum unciferum.

Hæmatopus galapagœnsis.

Trinoton luridum.

Nirmus ridgwayi.

Colpocephalum grandiceps.

Nesopelia galapagœnsis.

Nirmus separatus.

Lipeurus baculus.

Gonicotes galapagœnsis.

Colpocephalum milleri.

Buteo galapagœnsis.

Nirmus fuscus.

Colpocephalum flavescens.

" (juv.).

Asio galapagœnsis.

Docophorus cursor.

Corvus sp.

Docophorus corvi.

Colpocephalum subæquale.

Progne modesta.

Docophorus domesticus.

" breviformis.

Colpocephalum heterosoma.

Menopon incertum.

" rusticum.

Nesomimus parvulus.

Docophorus galapagœnsis.

Nirmus fuscomarginatus.

Menopon incertum.

Nesomimus melanotus.

Nirmus galapagœnsis.

Menopon incertum.

Geospiza fortis.

Nirmus galapagœnsis.